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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,984	03/29/2001	Jong-ki Han	1293.1192	3707
21171	7590	07/29/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			TUCKER, WESLEY J	
			ART UNIT	PAPER NUMBER
			2623	
DATE MAILED: 07/29/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/819,984	HAN, JONG-KI
	<b>Examiner</b>	<b>Art Unit</b>
	Wes Tucker	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 April 2004.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 10,12-20 and 22 is/are allowed.  
 6) Claim(s) 1-9,11,21,23,24 and 27-30 is/are rejected.  
 7) Claim(s) 2-9,21,23,24 and 27-30 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 29 March 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## DETAILED ACTION

### *Response to Amendments and Arguments*

1. Applicant's response to the last Office Action, filed April 29, 2004, has been entered and made of record.
2. Applicant has not amended any claims.
3. Applicant's arguments have been fully considered but are not persuasive for at least the following reasons.
4. Applicant argues that Matsuoka does not teach or suggest generating parameters, which determine cubic convolution interpolation coefficients in units of subblocks in order to perform cubic convolution on the original data. However, Matsuoka does disclose transforming image data into the frequency domain and extracting feature quantities or parameters that are used to select an interpolation filter best suited for that partial image (column 2, lines 24-34). The interpolation filters are chosen according to the determination made by the coefficient calculation unit (Fig.1, element 3 and column 6, lines 10-15 and 41-50) and therefore the coefficients are used to determine the cubic convolution used in the filtering operation (Fig.1, elements 4 and 5). Matsuoka discloses generating several parameters such as the feature quantities extracted the coefficients and the mean of the coefficients are used to select the

interpolation filter and therefore the cubic convolution method, which inherently uses cubic convolution coefficients.

5. The arguments made in regard to claims 11, 25, and 26 are also considered non-persuasive for the same reasons given in regard to claim 1. The reference of Matsuoka is still interpreted to disclose the elements of claims 1, 11, 25, and 26, therefore the grounds of rejection are maintained and the rejection is made final.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

7. Claims 1, 11, 25, and 26 rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,272,261 to Matsuoka.

8. With regard to claim 1, Matsuoka discloses a cubic convolution interpolating apparatus comprising an image signal divider dividing an image signal into a plurality of subblocks as original image data (Fig.1, element 1), and a generating unit generating

parameters which determine cubic convolution interpolation coefficients in units of subblocks, and performing cubic convolution interpolation on the original image data (column 2, lines 23-30, column 8, lines 45-50). The parameters or image feature quantities take the form of frequency-converted coefficients and are extracted from the frequency conversion or generating unit. These image feature coefficients are then used to calculate the interpolation coefficients by calculating the mean coefficients, which are used in selecting the interpolation to be executed (Fig.1, elements 1-5). A filter using cubic convolution interpolation is provided (column 8, lines 45-50).

9. With regard to claim 11, the discussion of claim 1 applies. Matsuoka discloses the method of claim 11 with regard to the apparatus of claim 1.

10. With regard to claim 25, Matsuoka discloses a cubic convolution interpolating apparatus used with an image signal, comprising a parameter optimizer optimizing a parameter which determines interpolation coefficients according to a local property of the image signal (column 3, lines 39-47). Here the parameter optimizer is the coefficient computing. A coefficient matrix is calculated, and from that matrix a mean coefficient or optimized parameter is used to determine the interpolation coefficients to be used in the interpolation.

Matsuoka further discloses a cubic convolution interpolator performing a cubic convolution interpolation on the image signal using the optimized parameter (column 3, lines 50-65).

11. With regard to claim 26, the discussion of claim 25 applies. Matsuoka discloses the method of claim 26 with regard to the apparatus of claim 25.

***Allowable Subject Matter***

12. Claims 2-9, 21, 23, 24, and 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 10, 12-20, and 22 are allowable.

14. The following is an examiner's statement of reasons for allowance:

With regard to claims 10, 12-20 and 22, none of the prior art teaches, or fairly suggests a forward scaling processor sampling a forward cubic convolution interpolated continuous function of original image data using a first scaling factor and scaling the original image data;

a backward scaling processor sampling a backward cubic convolution interpolated continuous function of the scaled data output from the forward scaling processor using a second scaling factor and restoring the scaled data into the original image data; and

a parameter optimizer optimizing a parameter using the original image data and the data restored into the original image data output from the backward scaling processor, and transferring the optimized parameter to the forward scaling processor and the backward scaling processor, respectively (as recited in claims 10 and 12).

Although Matsuoka (US 6,272,261; already of record) discloses cubic convolution interpolation in use with a parameter optimizer as discussed in regard to claim 1, he does not teach or fairly suggest forward and backward sampling of the function using two different scaling factors.

15. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

16. Other prior art considered pertinent, but not relied upon is listed below.

U.S. Patent 6,473,533 to Yokose et al. discloses encoding and decoding an image using DCT processing for images divided into high and low frequency components.

U.S. Patent 6,263,120 to Matsuoka describes the method of the apparatus disclosed as referenced above.

U.S. Patent 5,737,101 to Ito discloses an enlargement process for enlarging images using corrected coefficients.

***Conclusion***

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 703-305-6700. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wes Tucker  
4-20-2004



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